19. As shown above, no CLEC to date has deployed anything close to the number of switches it would need to offer service to all, or most, residential and business customers on a state-wide basis in any state. Similarly, no CLEC could quickly deploy the necessary number of switches. There is an additional, independent, and critically important reason why CLECs have not and will not invest the billions of dollars needed to attempt to serve the mass market using unbundled loops and their own switches: CLECs would face inherently higher costs in serving the mass-market than do the ILECs. This cost disadvantage is so significant as to make such a strategy economically impractical for those customers.

20. The CLECs' inherent cost disadvantage stems from one basic fact of monopoly network design. In each ILEC's network, the customers' loops terminate at a local ILEC switch. For a CLEC to serve one of those ILEC customers using the same ILEC loop (i.e., on an unbundled basis), the CLEC would incur the costs not only of leasing the unbundled loop, but of disconnecting that loop from the ILEC switch and extending it to the CLEC's remotely located switch. These latter costs are ones that the incumbent does not bear and, when considered on a per-line basis, they are considerable.

21. To illustrate these costs, AT&T has developed an analysis for New York State that describes the minimum per-line costs that a CLEC operating there would incur in extending customers' loops to its switches. This analysis is conservative. It includes only two categories of costs: the costs of purchasing and installing in the ILEC central office the equipment to extend the loops to the CLEC switch and the direct ILEC charges to the CLEC for reterminating the loops from the ILECs' switch to the CLECs' collocated equipment. The costs of the equipment were drawn largely from a prior joint ex parte by AT&T & MCI and the charges

applicable to reterminating the loops from publicly available rates approved for New York state.[7] The equipment costs alone incurred by a CLEC would be $117 per line and the additional retermination costs, compared to UNE-P, would be $37 per line, for a total additional upfront cost of over $150 per line for just these two categories of costs. After I explain these costs, I describe several other categories of costs that I have omitted, including added transport costs and the port-related switch costs, and that would even further inflate the substantial costs just for equipment and retermination.

1. Manually Cutting Over Particular Loops

22. For virtually every customer that a CLEC will serve with its own switch, the CLEC must pay the ILEC for the manual work of its technicians in performing what is known as a coordinated hot cut. Although I describe that process in more detail in Part III.A.2 of the affidavit, a coordinated hot cut requires ILEC technicians to disconnect the customer's loop from the ILEC facilities -- thereby taking the customer out-of-service during the period of the cutover -- and to re-connect it to the CLEC's facilities. Simultaneously, these technicians must coordinate with other ILEC technicians to ensure that they perform the work necessary to reassign or "port" the customer's telephone number to the CLEC's switch, so that calls coming inbound to that customer are properly routed to the CLEC's switch. In addition, the ILEC technicians must coordinate with CLEC technicians to ensure that the dial tone exists for the customer's termination.

23. The charge for performing this manual work is significant. In New York, for example, based on the rates approved by the New York PSC, Bell Atlantic assesses a non-

[7] See Letter From Chris Frentrup, MCI, to Magalie Roman Salas, FCC, CC Dockets 96-45 and 97-160, at 17-20 (Feb. 9, 1999). It is critical to note that ILECs have challenged these figures, arguing strenuously that they are too low.

recurring charge of about $45 per line for each coordinated hot cut, including the cost for the manual work and charges for local number portability on the part of the ILEC.[8] This figure understates the CLEC's total cost for the cutover, because it does not include the CLEC's internal costs of establishing the customer termination on the CLEC's switch and the often substantial cost of "project managing" the ILEC hot cut work. Because the ILECs' have deployed their switches in the same central offices where their customers' loops terminate, they generally do not incur comparable costs and, when they do, they are much smaller because more efficient processes are employed. See infra paragraph 74 (describing ILECs' use of recent change to turn its customers' service on and off). Accordingly, CLECs incur a significant cost disadvantage because coordinated hot cuts must be performed to access their customer's loops.

2. Equipment Costs

24. The second category of costs that I quantify relates to the CLECs' costs of purchasing the equipment to extend the loops from the collocated space to the remotely located CLEC switch. This is far and away the largest component of the costs.

25. First, to gain access to an unbundled loop, a CLEC currently must pay the costs of establishing collocated space within each ILEC central office that serves customers for which the CLEC wishes to compete. The costs of establishing collocation space vary considerably from state to state.[9] Based on AT&T's experience, the combined costs of the ILEC and AT&T's

[8] This charge is based upon currently applicable NY PSC approved charges and is equal to $44.86. Subtracting the equivalent non-recurring charges for UNE-P ($7.37), the total additional cost is $37.49.

[9] Depending on the LEC in question, these costs typically range from at least $30,000 to several hundreds of thousands of dollars, and, as one ILEC witness testified, while the costs are "not unlimited" they involve a "tremendous amount of money" that could be "cost prohibitive." See Redmond SC Testimony (Attachment 4) at 66. In some cases, ILECs have refused in advance to quote a specific price for space preparation, insisting instead on determining the fee on an "individual case basis" after consideration of an individual application. See Falcone Louisiana

preparation work can easily exceed $150,000 of one-time costs. In round terms, for every dollar of equipment placed in collocation space, there is about $0.15 to $0.20 (or more) of preparation costs.

26. Second, the CLEC must deploy equipment in the collocation space to convert its customers' analog loops to digital signals so that they can then be multiplexed and then transported to the CLEC's remotely deployed switch. To perform this function, CLECs would purchase forward looking technology such as GR 303 digital loop carriers (DLC). The cost of this equipment is about $60,430 to serve a maximum capacity of 672 lines.[10] I have assumed that CLECs' utilization factor for the DLCs will be 90 percent, which is forward-looking but in fact very conservative because a new entrant often may require substantial time to build up to that utilization level.[11] Based on these assumptions and equipment costs, the total per line cost to deploy DLCs to convert the analog loops to digital signals will be about $117.[12]

Affidavit, ¶ 131 (Attachment 3); Memorandum Opinion and Order, Application of BellSouth Corp. et al. for Provision of In-Region, InterLATA Service In Louisiana, CC Docket No. 98-121, FCC Rcd. 20599 (1998).

[10] The CLEC would need to install a Line Interface Unit, a Line Suppressor Unit and a Signal Processing Unit, which cost $1,850. Three shelves of Channel Bank Assemblies will be required, at a cost of $1,333, or a total cost of $4,000. Next, three sets of Channel Bank Commons Units, which include a Bank Control Unit, a Bank Power Supply, a Metallic Test Access Unit, a Ringing Generator Unit and a Comminations Interface Unit, will be necessary at a cost of $833, or a total cost of $2,500. Finally, for every four POTS lines, a POTS channel unit is required, which costs $310, for a total cost of $52,080. Thus, the DLC will cost $60,430 ($1,850 plus $4,000 plus $2,500 plus $52,080).

[11] Thus, my analysis does not capture the significant costs that a CLEC would incur if it incorrectly deploys these facilities, which is likely because it is a new entrant that has not gained experience on its customer base. If a CLEC guesses incorrectly and deploys, for example, too many DLC but then only attracts a few hundred customers, the CLEC will incur substantial sunk costs.

[12] This cost of $117 per line is derived in the following manner: The total cost of the DLC is $60,430. After loading 17.5 percent (an average of the range previously identified) of these equipment costs for the necessary space preparation costs (.175 times $60,430), the total costs for the equipment and space preparation is $71,019. Assuming 90 percent utilization, a 672 line DLC actually will deliver service for 605 lines. Dividing the total cost of the DLC and space

27. For both these preceding equipment costs and the costs of reterminating loops to the CLECs' facilities, a CLEC using its own switching starts at a cost disadvantage of well over $150 per line, which would clearly hinder CLECs' abilities to compete using their own switches.

3. CLECs Would Also Incur Numerous Other Costs

28. Although the previously identified $150 per line cost disadvantage that CLECs incur to extend their customers' loops is alone substantial enough to discourage CLECs from deploying large numbers of switches to enter local markets on a broad scale, there still are numerous additional and substantial cost disadvantages that CLECs would incur in deploying their own switches.

29. First, CLECs will incur their own costs for managing the manual work of the ILECs to cutover customer loops and to otherwise provision service using their own switches. Particularly given the ILECs' inability to cutover customer loops correctly, these CLEC costs can be substantial.

30. Second, my analysis did not include any costs for transport facilities needed to extend the loops from the CLECs' collocated space to their switches. In a best case scenario, CLECs will continue to have unbundled access at cost-based rates to the ILECs' dedicated transport facilities to perform this function.[13] If, however, unbundled dedicated transport were not available, then CLECs would be forced either to purchase special access from the ILECs or possibly to deploy their own fiber, and the cost disadvantage that CLECs would face would grow much larger. See Affidavit of Beans/Harris/Stith, ¶ 4, submitted herewith.

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preparation by the number of lines actually served ($71,019 divided by 605), the per line equipment investment is $117.38.

[13] For New York the cost of dedicated transport at the DS1 level will add about $113 per month or about $4.70/loop assuming that all 24 channels of the DS1 are utilized.

31. Third, I have assumed in my analysis that CLECs have already deployed the switches they would need to enter on a broad scale. But purchasing those switches is unquestionably a significant investment of up to $30 per line in port-related equipment costs. That is, the investment is incurred solely to terminate lines, not to perform switching functions.

32. Finally, CLECs would incur further costs because the high likelihood of an inefficient switch-based design. In deploying a network of switches and transport, a carrier must choose locations and capacity levels for its switches and transport that allow it to serve its customer base in the most efficient manner. There are numerous factors that a CLEC must consider in making these decisions, but one critical aspect is data on its customers – where they are located, the services they demand, and the calling and traffic patterns they generate. However, as new entrants, CLECs plainly lack this customer data, which makes it difficult, if not impossible, to deploy network facilities efficiently. Only by luck would CLECs avoid deploying switches and transport that are improperly sized or inefficiently located. High blocking rates (because it deployed too few trunks) or higher costs than the traffic warrants (because it deployed more equipment or trunks than needed) are the more likely outcome. Likewise, CLECs may end up deploying switches in locations too far away from their customers, which would require longer and more expensive transport. ILECs, on the other hand, have decades of experience in monitoring their own customers' demand. Accordingly, if CLECs cannot gradually deploy their own facilities, after gathering data on their customers and their traffic patterns, CLECs will face additional cost disadvantages because they will deploy facilities inefficiently.

C. UNE-P and Unbundled Switching Will Allow CLECs To Enter Local Markets On A Broad Scale.

33. In contrast to a strategy which requires CLECs to deploy their own switches and extend loops to serve all customers, unbundled switching and UNE-P are economically feasible

for CLECs to enter local markets quickly and on a broad scale, especially to reach customers for whom it would not be economically or practically feasible to deploy CLEC switches. Again, using New York State as a model, I estimate that UNE-P costs are significantly lower on average than for a mass market entry strategy relying solely on CLEC-owned switches. First and foremost, with UNE-P and unbundled switching, CLECs incur no equipment costs to extend customers' loops to their own switches. Second, CLECs that use UNE-P and unbundled switching will not face the significant charges for hot cuts. There will be a small amount of charges associated with ordering and other service provisioning of UNE-P, but based on the charges in New York, I estimate that these costs are about $7 per line. Third, based on the rates approved by the New York PSC for LATA 132 (the New York City LATA), the recurring charges for all the network elements in the UNE-P will be about $15. Although this is slightly more expensive – about $2.50 more -- than the recurring charge for the unbundled loop in that LATA, when other needed elements that CLECs would use in connection with their own switches, and the added cost of hot cuts are considered, the overall start-up costs of a UNE-P strategy would be lower, on a per-line basis, than a switch-based strategy would be for the vast majority of residential and many business customers.[14] Ignoring numerous cost categories and examining only the costs for hot cuts and DLC deployment, the $150 upfront cost disadvantage, compared to UNE-P, of an entry strategy based solely on CLECs deploying their own switches

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[14] In addition, CLECs using UNE-P would not incur many of the additional costs that I discuss. CLECs' own internal management costs for implementing a UNE-P would be much lower – about four times as lower – than the costs associated with management of the coordinated hot cut process. And because UNE-P allows CLECs to enter the market and then gradually deploy facilities after gathering data on its customers, CLECs could deploy those facilities efficiently.

takes more than five years to offset through lower ILEC monthly charges for the unbundled loop (compared to UNE-P).[15]

III. THE COORDINATED HOT CUT PROCESS INDEPENDENTLY IMPAIRS CLECs' ABILITY TO COMPETE BROADLY FOR RESIDENTIAL AND BUSINESS CUSTOMERS BECAUSE IT CANNOT BE PERFORMED IN LARGE VOLUMES OR WITHOUT SUBSTANTIAL RISKS OF PROLONGED SERVICE OUTAGES

A. Hot Cuts Require Numerous Manual Steps By ILEC Technicians and Close Coordination Among ILEC Technicians and With CLEC Personnel

34. Whenever a CLEC wants to serve a customer using unbundled access to the customer's loop and the CLEC's own switch, a coordinated hot cut must be ordered, scheduled, and executed. In the broadest sense, a coordinated hot cut entails reterminating the customer's loop – disconnecting it from the ILEC's facilities and then re-connecting to the CLEC's facilities -- and then, immediately afterward, making a software change so that the customer's number is ported to the CLEC's switch. As I detail below, however, this simple description masks the complexity of the process. In fact, a coordinated hot cut involves numerous steps that must all be performed in order and that must be synchronized among several ILEC technicians and CLEC personnel.

35. As I described in Part II, before even a single customer can be switched over to a CLEC's switch and receive the CLEC's competitive local service, the CLEC (along with purchasing and installing the switch itself, of course) must first establish collocated space at the ILEC central office and install a variety of other equipment in that space to extend the loops to

[15] The sum of the added investment of $117 per line and the added non-recurring costs of $37.49 ($44.86 less $7.37) incurred to re-terminate loops to the CLEC switch totals to a cost disadvantage of $154.49. That is offset by a monthly connectivity charge that is lower by $2.50 per month ($14.99 for the UNE-P versus $12.49 for the unbundled loop). This, ignoring the cost of money and the substantial additional costs incurred by CLEC to deploy their own switches, the breakeven point occurs at 61.8 months ($154.49 divided by $2.50).

the CLECs' switch -- processes that the ILEC need not undertake. For purposes of this discussion of coordinated hot cuts, however, I assume that a CLEC has already taken the time and incurred the costs to establish collocated space, to install and test digital loop carriers, multiplexers, and other necessary equipment, and to build or lease transport to its switch. The impairment that results from CLECs' sole reliance on coordinated hot cuts, therefore, is independent of the impairment that results from the cost and time disadvantages incurred in extending loops to CLECs' remotely deployed switches.

1. The Architecture of the Central Office

36. Before describing the numerous steps involved in a coordinated hot cut, I first explain the typical architecture of the equipment that an ILEC has installed in its central office. An understanding of this architecture is essential to describe the complexity of the hot cut process and the numerous steps that it entails.

37. Under the existing network architecture, most customers' loops consist of pairs of copper wires that terminate in the ILECs' central offices at a piece of equipment called the main distribution frame ("MDF").[16] The MDF consists of two sides: a line side, where the loops terminate, and the switch side, where cables connecting to the switch terminate. A series of connector blocks are located on both sides of the MDF. Each block typically contains approximately 200 terminals at which individual wires can be attached.

38. Customers' loops are typically attached to the ILEC's switch ports in the following manner: Cables that carry multiple loops enter the central office and run to the MDF. At the frame, each loop is segregated from these cables and attached (by being installed at the appropriate position on the block via a wire wrap or soldering) to the specific terminal on a

connector block to which the loop is assigned. This is a "hard-wired" connection that is installed at the time the cables are brought into the central office. Likewise, terminations on the switch are hardwired to the connector blocks on the other side of the MDF.

39. A separate wire, known as a "cross-connect" (or alternatively, "cross wire" or "jumper") is then attached between the designated line and switch side terminals. The length of the cross-connect required varies considerably, generally from ten to twenty feet up to as long 100 or even 200 feet.[17]

40. ILECs maintain a data base inventory of the cable pairs, switch ports, and connector block assignments making up the loop-switch cross-connection. ILECs typically keep track of each copper loop by its cable number and pair number, and record its place on the connector block ("block assignment") by assigning a number to each terminal on each block. Similarly, the switch ports are assigned identifying numbers.

a. Integrated Digital Loop Carrier (IDLC)

41. While the MDF-based architecture is the most commonly used today, a significant number of customers are served by integrated digital loop carriers (IDLC). In some states experiencing fast growth, the percentage of IDLC lines today exceeds 20 percent.

42. The central office architecture of the loop with IDLC is substantially different from the architecture described above. Instead of aggregating copper loops in cables and carrying them to the MDF at the central office, the ILEC brings the loop distribution facility to the IDLC remote terminal, which is located in an underground vault or locked cabinet in a neighborhood.

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[16] The exception is the growing number of customers served by integrated digital loop carriers (IDLC), which I discuss in paragraphs 41-42, 71-72, infra.
[17] When the CLEC establishes collocated space, the ILEC must install a set of tie cables between the connector blocks on the MDF and the CLECs' equipment in the collocated space. Once this

At the remote terminal, the analog loops' format is converted to a digital signal and the digital signals are multiplexed onto a digital carrier system for transmission to the central office. At the central office, the "digital" loops do not terminate on the MDF but rather access the switch through a separate digital cross-connection frame. No analog signal or physical appearance on an MDF exists or is ever established to identify an individual subscriber's loop. Therefore, when a customer is served by a loop on IDLC, there is no wire at the MDF that is associated with that loop that can be disconnected and then reconnected to the CLEC switch.[18]

2. Performing a Coordinated Hot Cut Requires Numerous Steps and Coordination Among Several Groups of Technicians

43. Because of the number of steps involved in a hot cut, the need for coordination among numerous ILEC and CLEC technicians, and the concomitant risks of a prolonged service outage, ILECs must establish and adhere to detailed methods and procedures (M&Ps) for performing coordinated hot cuts. Unfortunately, not all ILECs have agreed to M&Ps for coordinated hot cuts that are detailed enough for the ILECs to establish the routine process that is an essential prerequisite to reliable and timely provisioning of any coordinated hot cut. And even where detailed M&Ps have been established, ILECs have failed to perform hot cuts in a manner that avoids service disruption for customers.

44. In this part of the affidavit, I describe the M&Ps for coordinated hot cuts that Bell Atlantic-New York ("BA-NY") has recently agreed to follow in that state. My purpose is not to

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occurs, there will be a set of terminals on connector blocks of the MDF that will be used to re-terminate the loops to the CLECs' facilities.

[18] To date, CLECs seeking to enter the market using their own switches and ILEC loops have been severely disadvantaged in efforts to market to customers served by IDLC technology, because they typically do not learn that customers are served through this technology until shortly before a scheduled cutover. Moreover, ILECs have failed to provide a mechanism that enables CLECs to service such customers with a loop that is comparable in functionality, quality, provisioning interval, or cost.

endorse these particular M&Ps as the standard that all ILECs must meet -- although BA-NY's M&Ps are among the more detailed that any ILEC has agreed to adopt, they are not perfect, and AT&T, the NY PSC, other CLECs and BA-NY are still negotiating the final terms of the M&Ps. Rather, my purpose is to describe the M&Ps as they now exist and thereby to demonstrate more clearly the complexity of the process, the number of steps required, and the coordination that is essential to minimizing customer outages.

45. Merely adopting these or any other detailed M&Ps in no way assures that coordinated hot cuts will be provisioned in commercial quantities on an accurate and timely basis and without service disruptions. Indeed, BA-NY's current performance on coordinated hot cuts, even in small volumes, remains poor – AT&T's records show that BA-NY provisioning in the most recent week for which data is available has resulted in outages for about 38 percent of AT&T's customers. See infra paragraphs 48-52 (describing BA-NY's hot cut performance). Moreover, for reasons I discuss in Part III.C, even if detailed M&Ps are followed in all respects, manually intensive coordinated hot cuts cannot be relied upon as the exclusive means for converting the very large volumes of customers that will demand new local service providers in a competitive environment.[19]

46. The M&Ps agreed to by BA-NY are as follows:

1. CLECs will submit, and BA-NY should verify, a loop hot cut order. The order will contain information needed to complete the coordinated hot cut, such as the cable

[19] AT&T and other CLECs nonetheless hope to use their own switches to serve significant market segments, and CLECs therefore must currently rely on ILECs' ability to provide manual coordinated hot cuts for those customers. It is essential, therefore, that ILECs not only adopt detailed M&Ps but also devote the resources necessary to assure CLECs and their customers that ILECs can perform coordinated hot cuts in a timely manner, for the volumes that CLECs will request to serve these market segments, and without service disruptions.

and pair location of the loop, the customer's telephone number, the porting date and cutover time (which are the same for a coordinated cut over).

2. BA-NY should create the internal service orders needed for the hot cut and should provide an order confirmation to the CLEC with the due date, including frame due time.

3. The BA-NY service order should automatically generate a Service Order Activation ("SOA") subscription for local number portability ("LNP").

4. The CLEC will send the LNP subscription to the Number Portability Administration Center ("NPAC") within 18 hours of the CLEC's receipt of the order confirmation.

5. At least two days before the due date, personnel from BA-NY's Regional CLEC Coordination Center ("RCCC") should verify the service request with the CLEC, including the due date, frame due time, and number of lines to be cut over. The companies should also exchange the names and numbers for the technicians that will be involved in the hot cut process.

6. At this time, BA-NY should check its databases for the availability of central office facilities for the hot cut, and then assign the facilities so that they are reserved.[20]

7. At least three days before the due date, the CLEC will have established that its facilities to be used in the hot cut are available and that dial tone is established on the circuits that it will use to serve the customer.

8. Two days prior to the due date, BA-NY frame technicians should confirm the CLEC dial tone at the MDF and should check the MDF to verify that the connector block

[20] In this step, BA-NY should be able to identify if the customer is served with IDLC. If so, the CLEC needs to be informed of that as soon as possible to permit alternative methods for providing service to be used (<u>see</u> <u>infra</u> paragraphs 71-72).

terminal assignments identified in the ordering process (step 6) are in fact available and correspond to the customer's existing telephone number. If the CLEC has not yet established the dial tone, as described in step 7, BA-NY should contact the CLEC, which will have about four hours to establish dialtone. Otherwise, a new due date is scheduled.

9. On the due date, the RCCC should contact CLEC personnel one hour before the scheduled cut over time and indicate that the cutover is ready to proceed. The CLEC personnel will give a final authorization to proceed with the change in wiring within the central office.

10. BA-NY's RCCC should call BA-NY's frame technicians to proceed with the wiring changes for the hot cut. At that time, the technician should verify that the customer's line is idle, so that a call is not interrupted, and then verify again that the CLEC has established dial tone.

The BA-NY technicians will then perform the cutover. First, the technicians should lay-in a new cross-connect from the customer's loop location on the line side of the MDF to the CLEC's connector block on the MDF, and detach the existing connections – at which point the customer loses service. The technicians should then attach the new cross-connect to the terminals on the line side and at the CLEC connector blocks, which establishes a physical connection between the loop and the CLEC's switch. However, despite this physical connection, the customer does not have service until the remaining steps of the hot cut are completed. Finally, the technician should completely remove, or "mine," the old cross-connect that led from the loop location to the switch-side.

11. Once the manual wiring work is complete – but not before -- BA-NY's RCCC should contact BA-NY's Recent Change Memory Administration Center ("RCMAC") to remove the translations in the BA-NY switch that route the calls to the customer's prior loop location on the MDF.

12. After the wiring work and removal of switch translations is complete, BA-NY's RCCC should contact the CLEC, so that the CLEC can contact the NPAC to activate number portability for the customer.

13. Within one hour, the CLEC will determine whether the cutover was successful, and then notify the ILEC to complete the order so that the customer is now served by the CLEC.[21]

47. The ramifications of relying on the coordinated manual hot cut process as the basis for broad-based entry by CLECs into residential and small business markets are clear: To complete even a single coordinated hot cut requires numerous ILEC (and CLEC) personnel to perform a significant amount of largely manual activity. Manual work and coordination is involved many of the 13 steps, including Step 5 (contact between BA-NY and the CLEC to verify the service request); Step 6 (BA-NY check on availability of facilities); Step 7 (BA-NY checks facilities on its side of the circuit); Step 8 (check of dial tone at MDF and in-person verification of block assignments); Step 9 (contact by BA-NY with the CLEC one hour prior to

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[21] See Joint Supplemental Affidavit of Donald E. Albert, Julie E. Canny, George S. Dowell, Karen Maguire and Patrick J. Stevens on Behalf of Bell Atlantic - New York, Petition of New York for Approval of its Statement of Generally Available Terms and Conditions Pursuant to Section 252 of the Telecommunications Act of 1996; and Draft Filing of Petition For InterLATA Entry Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in the State of New York, Case No. 97-C-0271, ¶ 166 (Redacted Version) (N.Y. P.S.C. Apr. 13, 1999).

cutover); Step 10 (BA-NY contact with its frame technicians to proceed; frame technicians' cutover at the MDF); and Step 12 (BA-NY contacts CLEC to activate LNP and to test order).

B. Exclusive Reliance on Coordinated Hot Cuts For Broad-Scale Market Entry Would Severely Impair The Quality Of CLEC Service

48. Forcing CLECs to rely solely on coordinated hot cuts would impair their ability to enter local markets on a broad scale by compromising the quality of the service that CLECs could offer. The ILECs' difficulties in provisioning hot cuts to date, even with very small volumes of orders, illustrates the point. ILECs have made mistakes at virtually every step of the coordinated hot cut process, causing a variety of provisioning problems, including delays in converting customers, failures to port customers' existing telephone numbers (which prevents completion of incoming calls), and complete and extended service outages.

49. I again rely on CLECs' experiences in New York to illustrate these performance deficiencies. The problems there have been well documented not only by CLECs but in an extensive report by KPMG performed at the request of the New York PSC. That report concluded that BA-NY's coordinated hot cut procedures "are still flawed" even though BA-NY was handling only limited volumes of orders. KPMG Final Report (Draft), Apr. 19, 1999, POP-3, IV-65-70 (Attachment 5). KPMG found that BA-NY "systematically [did] not follow [its] prescribed process" for performing coordinated hot cuts, which causes "the customer's service [to] be disrupted." Id.

50. Notably, even though BA-NY subsequently agreed to adopt the more detailed M&Ps described above, its performance in provisioning hot cuts since those procedures were implemented has actually worsened over time. In the first four weeks of provisioning under the new M&Ps, from March 23, to April 19, 1999, BA-NY's mistakes led to service problems in about 17 percent of AT&T's orders. That level of performance is patently inadequate to support

competitive entry by CLECs on any scale, and the results are particularly discouraging because of the extremely small volumes – about 54 orders in four weeks -- that BA-NY was provisioning for AT&T. In the next two weeks under the new M&Ps, BA-NY's performance got no better – even for similarly low order volumes, a significant portion of AT&T's customers suffered outages due to BA-NY errors. And in week seven, from May 4 to May 10, 1999, BA-NY's performance declined: of AT&T's 37 coordinated hot cut orders, 38 percent were provisioned incorrectly by BA-NY. Moreover, throughout this period, BA-NY consistently failed to return confirmations for AT&T's orders about 25 percent of the time. Because the order confirmation contains such critical information as the cutover time and cable and pair assignments, CLECs simply cannot take the necessary steps to prepare their own systems and facilities to offer service unless they have timely and accurate order confirmations.

51. These BA-NY service errors led to prolonged outages for AT&T's customers. In the first four weeks the outages ranged from about 30 minutes to over 48 hours in a few cases. Amazingly, as time went on, the outages became even longer: in week seven, AT&T's customers suffered outages lasting from 2 hours to a full week. Indeed, a full 10 percent of the orders were out of service for at least four days. With BA-NY's coordinated hot cut process causing customer outages of this magnitude and duration, no CLEC can afford to rely on it to enter and market its services on a statewide basis.

52. Indeed, BA-NY itself has effectively acknowledged that its inability to perform reliable and timely hot cuts adversely affects the market entry plans of CLECs. It recently released a draft "UNE Loop Insurance Program" that allows CLECs to "request . . . UNE-P as a substitute for Hot Cuts" if "BA-NY is not capable of providing UNE Loop Hot Cuts." See Attachment 6. Although the program is flawed and fails to recognize that CLECs' entry plans

require reliable coordinated hot cuts in addition to the UNE-P, BA-NY's reversal of policy and conditional offer of UNE-P essentially admits what CLECs have long recognized: that the hot cut process, especially as currently implemented, cannot support widespread CLEC entry into local markets.

53. Bell Atlantic's failures in performing even limited volumes of hot cuts without causing prolonged service outages are not unique. Other ILECs have had similar difficulties. In Florida, for example, numerous consumers complained to the state PSC that their request to change local service providers has led to service outages, which apparently were caused by BellSouth's hot cut procedures. In U S West's territory, nearly all of AT&T's limited numbers of orders have likewise been subject to outages of up to a week because U S West cannot properly perform the number portability.

54. These experiences further confirm that coordinated hot cuts cannot support broad-based competitive entry. They also reflect limitations inherent in the hot cut process that make it unsuitable as an exclusive method to support entry on a broad scale.

55. For example, a coordinated hot cut necessarily takes the customer out of service for some period of time. Even if detailed M&Ps are followed perfectly, a customer will be out of service entirely from the time the ILEC technicians disconnect the wiring in the central office until the time that it is re-connected to the CLECs' facilities. Even then, the customer will not be able to receive incoming calls until its telephone number is properly ported.

56. If even a single mistake occurs in any of the numerous steps involved in a coordinated hot cut, the customer's outage can become prolonged. In fact, even after BA-NY began implementing its new M&Ps that I described above, many of AT&T's new customers in

New York suffered outages as a result of BA-NY's mistakes in the coordinated hot cut process. As noted above, these service outages have lasted anywhere from a few hours to several days..

57. Because of the numerous manual steps in a coordinated hot cut, the lack of training for technicians, and their failure to follow established M&Ps, ILECs routinely make a wide variety of errors. In New York, AT&T carefully studied BA-NY's hot cut provisioning process and was able to identify some types of errors that typically occurred.[22] Based on AT&T's review, the problems included:

1. BA-NY would return order confirmations to AT&T with incomplete and/or incorrect information. Absent accurate information in the confirmation, AT&T could not know when the manual cutover was scheduled to take place and could not plan its own work needed to complete the coordinated hot cut. See Attachment 7 (Davidow/Mulvee Letter at 6-10). As described above, BA-NY still consistently fails to return confirmations for about 25 percent of AT&T's orders.

[22] See Letter of Harry Davidow and Robert Mulvee, AT&T, to Daniel Martin, NYS Department of Public Service, Feb. 5, 1999 ("Davidow/Mulvee Letter") (Attachment 7). Notably, the impetus for this examination was that BA-NY had been reporting in its performance metrics nearly perfect performance in provisioning coordinated hot cuts, even though AT&T's and other CLECs' experiences were precisely the opposite. Joint Affidavit of Raymond Crafton, et al. on Behalf of AT&T Corp., Petition of New York for Approval of its Statement of Generally Available Terms and Conditions Pursuant to Section 252 of the Telecommunications Act of 1996; and Draft Filing of Petition For InterLATA Entry Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in the State of New York, ¶ 132, Case No. 97-C-0271 (N.Y. P.S.C. Apr. 28, 1999) ("AT&T Joint Aff.") (Attachment 8). AT&T found that BA-NY's metrics were essentially meaningless because they failed to accurately depict BA-NY's performance (or, rather, its lack of performance). Id.; Davidow/Mulvee Letter at 4-5. For example, BA-NY would measure whether a hot cut was performed merely by examining whether the work steps had been performed on time, without any regard for whether the work steps were in fact performed *correctly*. Id. Even for customers experiencing service outages, BA-NY's metrics showed good performance, so long as even BA-NY's mistaken steps in the process were undertaken on time. This demonstrates the critical need for accurate performance data and for regulators to be willing to examine the actual performance behind whatever the incumbent LEC initially offers to provide.

2. BA-NY simply missed committed due dates, for a variety of reasons, such as

a) BA-NY frame technicians performed the manual loop cutover and other framework at the incorrect time;

b) BA-NY technicians connected the customer's loop to the wrong cable pair and assignment;

c) BA-NY failed to make appropriate cabling available.

3. BA-NY committed errors in re-programming its switch that prevented the customer from receiving number portability.[23]

58. These findings were confirmed and expanded upon by a third-party review conducted by KPMG on behalf of the New York Public Service Commission. Like AT&T, KPMG found that BA-NY commonly committed numerous missteps. KPMG Final Report (Draft), Apr. 19, 1999, POP-3, IV-65-70.[24] Specifically, KPMG found that BA-NY service coordinators consistently failed to "contact[] the CLECs before the due date" of the orders. KPMG Final Report, App. E, KPMG Exception ID No. 9, p.18 (Attachment 5). For "more than half of the orders, the RCCC Coordinators [also] failed to log and call the CLECs one-hour prior to [cutover] and post-cutover." Id. Because of BA-NY's failure, "the CLEC can not pass along order status to its customers, giving the impression of poor quality service by the CLECs. In

[23] Other errors may emerge over time. For example, the wire used on the MDF is typically only 22 gauge – approximately the diameter of pencil lead, and therefore inherently frail. If subjected to excessive and unnecessary handling, the wires, many of which have been in place for years, can break. Although the risks of breakage may not be significant with small volumes of hot cuts, if millions of hot cuts must be performed every year, then risks of breakage and subsequent outages become very substantial.

[24] Both AT&T's examination and KPMG's study were based on BA-NY provisioning of coordinated hot cuts that occurred before BA-NY agreed to the M&Ps described above. Nonetheless, the conclusions remain highly significant, for at least two reasons. First, as discussed above, even after BA-NY has adopted the new M&Ps, it continues to make these same

addition, the CLEC has no opportunity to review order details, such as the cable and pair numbers, loop signaling, etc., with the Coordinator to ensure accuracy. This may result in errors during the hot cut." Id.

59. In another section of the Report, KPMG detailed additional types of mistakes that BA-NY commonly made, including failures to place coordinating telephone calls; untimely removals of cross-connects –both too early and too late -- that prevented the necessary coordination; failures to test for dial tone on the CLEC switch; and failures to test service after the performance of the cutover at the MDF. See KPMG Exception ID No. 54 (Attachment 5).

60. It is often difficult and time-consuming to discover the source of a provisioning problem or a customer's outage in the coordinated hot cut process – a difficulty that is compounded by the CLECs' near-total reliance on the ILECs to identify the source of the problems. Due to customer complaints, the CLEC is aware only that the customer is experiencing problems with the service. See KPMG Report, POP-3, IV-66 (noting that problems in the hot cut process were not identified "until the customer is out of service"). Although the frequency of certain types of errors makes them good candidates for an initial inquiry, the CLEC often must troubleshoot the entire coordinated hot cut process to find the source of the error.

61. The competitive impacts of these provisioning problems and service outages cannot be overstated. First and foremost, the CLECs' relationship with its new customer is damaged – often irreparably – at a time when it is just beginning and therefore is most sensitive to problems. Moreover, as word of these problems spread other consumers will be reluctant to change service

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types of errors. Second, because most ILECs have not agreed to detailed M&Ps, CLECs are experiencing similar problems with coordinated hot cuts in other states.

to any CLEC.[25] It is, of course, essential that ILECs remedy these provisioning problems so that CLECs may confidently rely upon the coordinated hot cut process when it makes economic sense to serve a customer using the CLEC's own switch. But the magnitude of problems to date and the inherent limits of the process as a vehicle for broad-scale entry underscore the importance of assuring CLEC access to unbundled switching and the UNE platform.

C. CLECs Market Entry Would Be Gated Because of the Hot Cut Process

62. If CLECs' broad-based entry efforts were dependent solely upon the ILECs' ability to perform large volumes of coordinated hot cuts using the current largely manual processes, CLECs would be impaired in offering competitive local service. To date, ILECs have been unable to use their current procedures to perform coordinated hot cuts in the volumes necessary to support widespread entry by CLECs into local markets. Indeed, they have generally been unable to perform a small fraction of the hot cuts need to support the entry plans of CLEC that are trying to serve some customer segments with their own switches. Moreover, unlike an entirely or largely automated process, such as that which would occur for UNE-P, coordinated hot cuts cannot be performed immediately upon request in all central offices. Finally, coordinated hot cuts cannot be employed to serve some customers served with IDLC loops and ILECs have not provided an alternative method for serving such customers that is comparable in functionality, quality, provisioning interval and cost. Together, all of these factors limit the number of customers that CLECs can compete for and serve. Contrary to the Commission's requirements, if CLECs were to attempt to enter the market on a broad scale, ILECs could not

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[25] Even with the currently low volumes of coordinated hot cuts ILEC are provisioning, negative press is appearing. See, e.g., WNBC-TV News Transcript, "News Channel 4 at 6:00," New York, NY, Oct. 6, 1998 (Attachment 9) (in trying to change to AT&T local service, customer suffered outages that Bell Atlantic admitted that it caused, with report stating that the customer

use coordinated hot cuts "to efficiently switch over customers as soon as the new entrants win them."[26]

1. The Manual Work and Coordination Necessary With Coordinated Hot Cuts Limits the Number of Customers that ILECs Can Convert to a CLEC's Service And Precludes Reliance On Hot Cuts As The Sole Means To Support Competitive Entry

63. Because coordinated hot cuts require careful adherence to procedures and close coordination among several groups of ILEC and CLEC personnel, the current process takes significant time to execute. As set forth above, the current coordinated hot cut process must be performed in a prescribed sequence of steps. If one step is delayed or not completed, the remaining steps in the process – and the customer conversion -- must likewise be delayed or the customer will likely experience a service disruption.

64. The manual work needed to establish the cross-connections on the MDF is also time-consuming and costly. As described above, this manual work on the frame would typically be performed by a team of three technicians: one person working on the line side of the frame, one on the switch side, and a third who coordinates their activity, e.g., by calling out assignments and block appearances on the frame. The need for this extent of manual labor just at the frame is itself a bottleneck that precludes reliance on hot cuts as the sole method to support competitive entry.

65. First, there is a limit to the number of technicians that can work effectively on an MDF at one time. Typically, no more than two or three teams of two-to-three frame technicians can work effectively at one time. Because of the nature of the layout of the frame and how

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"now wish they had not opted for a change"); Businesses Left Incommunicado After Trying To Switch Local Phone Service, Ft. Lauderdale Sun-Sentinel, May 11, 1999 (Attachment 10).

cross-connections must be run, putting more bodies on the frame does not always increase output. To the contrary, more bodies can cause interference and thereby actually slow down the progress that any one team is able to make and decrease productivity.

66. Second, there is a limit to the number of cutovers that any team can effectively do in a given shift. Care must be taken to be sure that the correct tie-cable and pair numbers and block assignments have been identified, that there is no call on the line at the time of the cutover, and that connectivity has been reestablished.

67. In addition, at many central offices, there typically is work already taking place on the frame that would further reduce the ILEC's ability to accommodate additional frame work for CLECs. And presumably the ILECs' existing workforce is already fully occupied with frame work that currently needs to be done. It is therefore not at all clear where all of the technicians needed to perform the manual work for CLECs will come from.

68. Significantly, (and even if several teams of technicians could work together efficiently on the MDF), ILECs have not made firm commitments for the number of technicians that will be available to perform this work. The ILECs' inability to make defensible commitments of how they could provision mass volumes of coordinated hot cuts is telling evidence that they could not do so, and that CLECs' have identified actual and serious concerns that relying on coordinated hot cuts to serve the mass market would gate CLECs' entry.

2. Coordinated Hot Cuts Cannot Be Performed On Demand In All Locations In Which A CLEC Would Compete.

69. Coordinated hot cuts also significantly hinder a CLECs' ability to compete on a widespread geographic basis. A CLEC that attempted to provide meaningful competition to an

[26] Memorandum Opinion and Order, Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide In-Region, InterLATA

ILEC -- that pursued state-wide entry, with mass-market advertising, generating a high-volume of new customers -- would generate volatile and unpredictable demands for cutovers at practically every central office, large and small, throughout the state. These are demands that the existing ILECs' coordinated hot cut process could not meet.

70. Indeed, at many suburban and virtually all rural central offices, there are no frame technicians on site as a regular matter at any time. At those offices, a shift of 1 to 3 technicians would mark a significant event; three shifts of two-technician teams would rarely, if ever, occur. This further demonstrates that the hot cut process alone could not support the broad scale competition envisioned by the 1996 Act.

3. ILECs Are Not Permitting CLECs To Serve Customers with IDLC Loops

71. AT&T has encountered serious problems in seeking to compete for customers served with IDLC. Our experience has been that customers served with IDLC facilities experience significant delays in getting service provisioned on a timely basis (or even at all), both because ILECs have been unwilling or unable to provide AT&T with appropriate advance notice where customers are served with IDLC facilities and because ILECs have been unwilling or unable to make adequate alternative serving arrangements available. In the case of Bell Atlantic, for example, AT&T has requested that Bell Atlantic implement a process to ensure that AT&T could provide service to such end-users via an unbundled loop that is comparable in functionality, quality, provisioning interval and costs. We have also requested that, until such a process is implemented, interim processes be established which provide notification to AT&T as promptly as possible after order placement that an end user is currently served via IDLC facilities. And we have requested that Bell Atlantic provide AT&T with information concerning the deployment of

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Services in Michigan, 12 F.C.C. Rcd. 20543, ¶ 21 (1997).